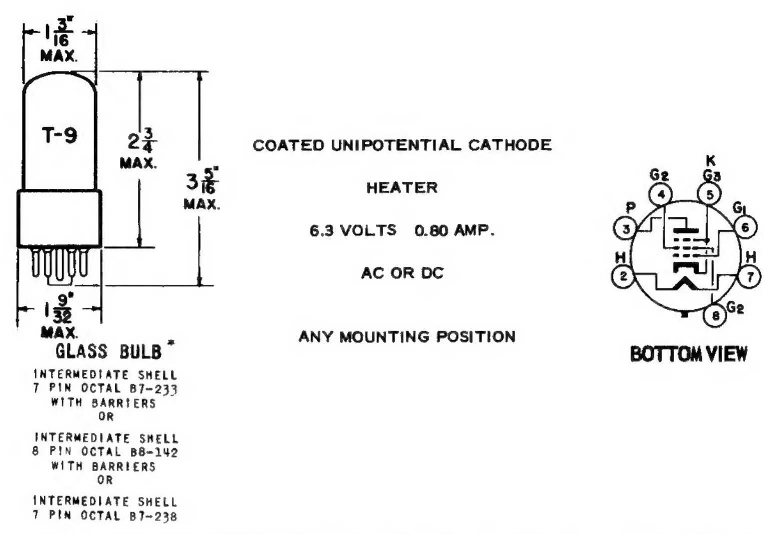
TUNG-SOL

PENTODE



THE 7591 IS A BEAM POWER PENTODE DESIGNED FOR USE AS AN AUDIO FREQUENCY POWER OUTPUT TUBE. IT HAS HIGH POWER SENSITIVITY AND HIGH EFFICIENCY AND IS ESPECIALLY DESIGNED FOR APPLICATIONS WHERE HIGH POWER OUTPUT IS REQUIRED.

DIRECT INTERELECTRODE CAPACITANCES

GRID TO PLATE	.25	μμf
INPUT: G1 TO (H+K+G2+G3)	10.0	μμf
OUTPUT: P TO (H+K+G2+G3	5.0	μμf

RATINGS

INTERPRETED ACCORDING TO DESIGN MAXIMUM SYSTEM

HEATER VOLTAGE	6.3	VOLTS
MAXIMUM PLATE VOLTAGE	550	VOLTS
MAXIMUM SCREEN VOLTAGE	440	VOLTS
MAXIMUM PLATE DISSIPATION	19.0	WATTS
MAXIMUM SCREEN DISSIPATION[A]	3.3	WATTS
MAXIMUM CATHODE CURRENT	85	MA.
MAXIMUM GRID #1 CIRCUIT RESISTANCE:		
WITH FIXED BIAS	0.3	MEGOHMS
WITH CATHODE BIAS	1.0	MEGOHMS
MAXIMUM HEATER-CATHODE VOLTAGE:		
HEATER NEGATIVE WITH RESPECT TO CATHODE		
TOTAL DC AND PEAK	200	VOLTS
HEATER POSITIVE WITH RESPECT TO CATHODE		
DC	100	VOLTS
TOTAL DC AND PEAK	200	VOLTS

*INDICATES AN ADDITION.

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TYPICAL OPERATION

CLASS A_1 AMPLIFIER

HEATER VOLTAGE	6.3	VOLTS
HEATER CURRENT	0.80	AMP.
PLATE VOLTAGE	300	VOLTS
SCREEN VOLTAGE	300	VOLTS
GRID #1 VOLTAGE	−10	VOLTS
PEAK AF GRID VOLTAGE	10.0	VOLTS
PLATE CURRENT (ZERO SIGNAL)	60	MA.
PLATE CURRENT (MAX. SIGNAL)	75	MA.
SCREEN CURRENT (ZERO SIGNAL)	8.0	MA.
SCREEN CURRENT (MAX. SIGNAL)	15.0	MA.
TRANSCONDUCTANCE	10 200	μMHOS
PLATE RESISTANCE	29 000	OHMS
TRIODE AMPLIFICATION FACTOR	16.8	
LOAD RESISTANCE	3000	OHMS
POWER OUTPUT	11	WATTS
TOTAL HARMONIC DISTORTION	13	PERCENT

PUSH-PULL CLASS AB_1 – PENTODE CONNECTION

VALUES FOR TWO TUBES

	FIXED BIAS					CATHODE BIAS	
PLATE SUPPLY VOLTAGE	300	350	400	450	450	450	VOLTS
SCREEN SUPPLY VOLTAGE	300	350	350	350	400	400	VOLTS
GRID #1 VOLTAGE	−12.5	−15.5	−16.0	−16.5	−21		VOLTS
COMMON CATHODE RESISTOR						200	OHMS
PEAK AF GRID TO GRID VOLTAGE	25	31	32	33	42	28	VOLTS
ZERO SIGNAL PLATE CURRENT	86	92	85	77	66	82	MA.
MAX. SIGNAL PLATE CURRENT	116	130	143	153	144	94	MA.
ZERO SIGNAL SCREEN CURRENT	12.6	13.0	11.0	9.6	9.4	11.5	MA.
MAX. SIGNAL SCREEN CURRENT	26.0	28.6	27.0	27.0	30.0	22	MA.
EFFECTIVE LOAD, PLATE TO PLATE	6600	6600	6600	6600	6600	9000	OHMS
TOTAL HARMONIC DISTORTION	2.5	2.0	1.5	1.5	1.5	2.0	PERCENT
MAXIMUM SIGNAL POWER OUTPUT	23	30	37	43	45	28	WATTS

PUSH-PULL CLASS AB_1 – ULTRA-LINEAR[B] OPERATION

VALUES FOR TWO TUBES

	FIXED BIAS	CATHODE BIAS	
PLATE SUPPLY VOLTAGE	400	425	VOLTS
GRID #1 VOLTAGE	−20.5		VOLTS
CATHODE RESISTOR (COMMON TO TWO TUBES)		185	OHMS
PEAK AF GRID TO GRID VOLTAGE	41	42	VOLTS
ZERO SIGNAL PLATE CURRENT	80	88	MA.
MAXIMUM SIGNAL PLATE CURRENT	138	104	MA.
ZERO SIGNAL SCREEN CURRENT	11.5	13.0	MA.
MAXIMUM SIGNAL SCREEN CURRENT	26.4	17.5	MA.
EFFECTIVE LOAD, PLATE TO PLATE	6600	6600	OHMS
TOTAL HARMONIC DISTORTION	1.0	2.0	PERCENT
MAXIMUM SIGNAL POWER OUTPUT	32	26	WATTS

A. SCREEN DISIPATION MAY BE PERMITTED TO REACH 6 WATTS DURING THE PERIODS OF MAXIMUM INPUT OF SPEECH AND MUSIC SIGNALS. FOR EFFICIENT OPERATION OF THE SCREEN, THE TWO SCREEN CONNECTIONS, PINS 4 AND 8 SHOULD BE EXTERNALLY TIED TOGETHER.

B. SCREEN TAPPED AT 40% OF PRIMARY TURNS.